LA-UR-11-10993

Approved for public release; distribution is unlimited.

Title: Landscape of the Quarkonia Puzzle

Author(s): Leitch, Michael J.

Intended for: Workshop on Quarkonia in Deconfined Matter, 2011-09-27/2011-09-30

(Acitrezza/Catania, , Italy)



Disclaimer:

Disclaimer:
Los Alamos National Laboratory, an affirmative action/equal opportunity employer,is operated by the Los Alamos National
Security, LLC for the National NuclearSecurity Administration of the U.S. Department of Energy under contract DE-AC52-06NA25396.
By acceptance of this article, the publisher recognizes that the U.S. Government retains nonexclusive, royalty-free license to
publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes.
Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the
U.S. Departmentof Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish;
as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.



Technical Information Release

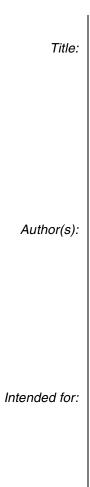
IRM-RMMSO

reviewandapproval@lanl.gov

Reserved for Classification Group (SAFE-1) LA-UR LA-CP		Submit to Classification Group (SAFE-1), MS F674, TA-3-1400, Rm 3475, the following, in order and clipped (not stapled) together: ✓ This form, blocks 1-8 completed ✓ Appropriate cover sheet (Form 836 for LA-UR, Form 1756a-e for LA-CP) ✓ 1 copy (double-sided for paper, if practical) of STI product For world-wide web content, provide signed form and secure url address to web_standards@lanl.gov.		
1. Author(s) (Include all contributing authors; first must be LANL employee.)				
Last	First	Middle	Z No.	Group or affiliation
2. Primary Responsible Author: My signature attests to the integrity and validity of the information provided on this form and the associated STI product, and affirms that all authors concur with its publication.				
Printed Name	Signature Date			
3. Document Title (use upper/lower case; spell out symbols)				
4. Type of Information	Intended for:			
Abstract Full Paper/Report	☐ Journal ☐ Proceedings ☐ Meeting ☐ Talk ☐ Book ☐ World-wide Web			
Summary Poster	Book Chapter Electronic (e.g. e-print archive) Other:			
Audio-Visual (abstract required)	Particulars: (see point # 4 of instruction sheet.)			
☐ Viewgraphs/Presentations	Meeting/Conf. Name:			
(abstract required)	City, State, and Country: Mtg. Date:			
Other:	Journal Name:			
	Other:			
5. Research sponsored by Program Code used for this work:				
□ DOE/LANL/LDRD □ DHS □	DOD Other:			
6. Deadline Date	Z Number, name, e-mail, and phone number of contact for notification of release			
o. Deadime Date	2 Hamber, hame, o mail, and phone number of contact for notification of release			
7. Classification Category (<i>Cite applicable DUSA or obtain Derivative Classifier review</i>)				
Unclassified Unclassified Unclassified, controlled; Category:				
Applicable DUSA Designator:	Derivative Classifier Name	Signature		Date
8. Responsible Line Manager: Consistent with my responsibilities and authorities, my signature certifies that I have reviewed this STI product for professional, contractual, programmatic, institutional, and patent sensitivities, and that I concur with its publication. Printed Name Signature Date				
To be completed by Classification Group, SAFE-1				
Date Received	OSTI Category			Date Released
Classification Analyst Signature U C S RD FRD NSI UCNI OUO				
Comments:				
To be completed by IRM-RMMSO				
OSTI Distribution Yes No Record Copy to Research Library Yes No				

LA-UR-

Approved for public release; distribution is unlimited.





Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the Los Alamos National Security, LLC for the National Nuclear Security Administration of the U.S. Department of Energy under contract DE-AC52-06NA25396. By acceptance of this article, the publisher recognizes that the U.S. Government retains a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.

Landscape of the Quarkonia Puzzle
----Michael Leitch, LANL

I will discuss the current status of the study of Quarkonia as a tool for understanding Cold Nuclear Matter effects and for determining the screening length in the Quark-Gluon Plasma (QGP). These studies comprise a puzzle with many different physics effects needing to be understood in order to isolate the most interesting fundamental physics – i.e. that associated with gluon saturation in nuclei and with the screening length in the Quark-Gluon Plasma. I will review quarkonia suppression in nucleus-nucleus collisions, the strong cold nuclear matter effects seen in deuteron-nucleus and proton-nucleus collisions, their effect on suppression seen in nucleus-nucleus collisions, and discuss the next steps in solving the quarkonia puzzle with upgrades of the detectors at RHIC.